



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,528	02/04/2004	Henrique S. Malvar	MCS-070-03 (307216.01)	5405
27662	7590	07/03/2007		
MICROSOFT CORPORATION C/O LYON & HARR, LLP 300 ESPLANADE DRIVE SUITE 800 OXNARD, CA 93036			EXAMINER LEE, PING	
			ART UNIT 2615	PAPER NUMBER
			MAIL DATE 07/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/772,528

Applicant(s)

MALVAR ET AL.

Examiner

Ping Lee

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 is vague and indefinite because it depends on claim 22 which is not pending at this stage of prosecution.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-4, 8-11, 15, 16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hedeem (US 5,125,260) in view of Miller, II (hereafter Miller) (US 5,029,215).

Regarding claim 1, Hedeem discloses a system for automatically matching responses in a microphone array (12, 14), comprising:

injecting at least one excitation pulse into each preamplifier in the microphone array;

measuring each output response to each excitation pulse (36, 38);

performing a frequency-domain analysis of the measured output response to each excitation pulse (col. 4, line 49); and

computing frequency-domain compensation gains from the results of the frequency-domain analysis for matching the output of each microphone (col. 4, lines 50-53).

Hedeem discloses the claimed invention with the exception that there is preamplifier coupled to each microphone in the microphone arrays. Although not explicitly shown, some kind of amplifier device should be coupled to the microphones in Hedeem in order to provide signal in proper level to be further processed (by A/D converter, Fourier Transform ... and etc). One skilled in the art would have been motivated to search any related art for providing such function. Miller teaches the specific layout of having preamplifiers (410, 411) coupled to each microphone. In a

similar fashion, the gains of the preamplifiers are adjusted to match the frequency responses between the microphones in the microphone array. Thus, it would have been obvious to one of ordinary skill in the art to modify Hedeem in view of Miller by utilizing the adjustable preamplifier coupled to each microphone in the microphone arrays in order to adjust the gain after the frequency analysis.

Regarding claim 2, Hedeem as modified in view of Miller teaches that two or more excitation pulses are injected into each preamplifier in the microphone array, and wherein the measured preamplifier output response for each preamplifier is the average response to each excitation pulse (col. 4, lines 58-66 in Hedeem).

Regarding claims 3, 8, the claimed "computer" reads on a device which performs calculation, the claimed "computer interface" reads on the device on the microphone array coupled the microphone signals to a computer (such as Fourier spectrum analyzer) and the claimed "external computing device" reads on Fourier spectrum analyzer which is external from the microphone array. Another interpretation would be provided below.

Regarding claims 9, 10, Hedeem fails to show digitizing the output. However, as suggested in Miller, the frequency response analysis could be performed in digital signal using a computer. Thus, it would have been obvious to one of ordinary skill in the art to modify Hedeem by utilizing A/D converter as suggested in Miller in order to perform calculation using a computer or a similar digital computing device.

Regarding claims 11, 3, 4, 8, 15, 16 and 20, Hedeem in view of Miller teaches the external computing device (computer) coupled to a computer interface.

Regarding claims 18 and 19, Miller teaches having a set of at least one speaker.

6. Claims 5-7, 12-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hedeem in view of Miller as applied to claims 1, 3, 9 and 15 above, and further in view of Komninos (US006058076A).

Regarding claims 5-7, 12-14 and 17, Hedeem fails to show the microphone array including at least one memory. Hedeem teaches that the compensation gains would be stored at an external memory device (col. 5, lines 16-18) for further application. This would provide inconvenience when the microphone probe and the memory are two separate devices. Komninos teaches to integrate a memory with the microphone probe (col. 18, line 44). The memory could store some predetermined parameters. Thus, it would have been obvious to one of ordinary skill in the art to modify Hedeem and Miller in view of Komninos by integrating a memory with the microphone probe in order to provide convenience when the user moves the microphone probe to different places.

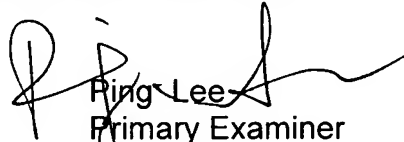
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522.

The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2615

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ping Lee
Primary Examiner
Art Unit 2615

pwl